

**APPARATUS AND METHOD FOR PASSIVELY MONITORING LIVENESS OF
JOBS IN A CLUSTERED COMPUTING ENVIRONMENT**

ABSTRACT OF THE DISCLOSURE

An apparatus and method passively determine when a job in a clustered
5 computing environment is dead. Each node in the cluster has a cluster engine for
communicating between each job on the node and jobs on other nodes. A protocol is
defined that includes one or more acknowledge (ACK) rounds, and that only performs
local processing between ACK rounds. The protocol is executed by jobs that are
members of a defined group. Each job in the group has one or more work threads that
10 execute the protocol. In addition, each job has a main thread that communicates between
the job and jobs on other nodes (through the cluster engine), routes appropriate messages
from the cluster engine to a work thread, and signals to the cluster engine when a fault
occurs when the work thread executes the protocol. By assuring that a dead job is
reported to other members of the group, liveness information for group members can be
15 monitored without the overhead associated with active liveness checking.